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07/965305

SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
07/965,305	10/23/92	HEINZ T	P3232-2002

DVORAK, L EXAMINER

33M1

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ART UNIT	PAPER NUMBER
3302	2

DATE MAILED: 05/03/93

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☐ Responsive to communication filed on _____ ☐ This action is made final.

A shortened statutory period for response to this action is set to expire Three month(s), _____ days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☒ Notice of References Cited by Examiner, PTO-892.
2. ☒ Notice re Patent Drawing, PTO-948.
3. ☐ Notice of Art Cited by Applicant, PTO-1449.
4. ☐ Notice of Informal Patent Application, Form PTO-152.
5. ☐ Information on How to Effect Drawing Changes, PTO-1474.
6. ☐ _____

Part II SUMMARY OF ACTION

1. ☒ Claims 1-16 are pending in the application.
   Of the above, claims _____ are withdrawn from consideration.
2. ☐ Claims _____ have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☒ Claims 1, 2, 4, 6, 10-16 are rejected.
5. ☒ Claims 3, 5, 7-9 are objected to.
6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable. ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed on _____, has been ☐ approved. ☐ disapproved (see explanation).
12. ☐ Acknowledgment is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

EXAMINER'S ACTION

Claims 11-16 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 11, 13, and 16, the phrase "means for unloosening" is indefinite. Is the applicant intending to claim means for --loosening-- or --tightening--?

Further regarding claims 11-16, the recitation "means for determining whether user has removed said brace without loosening the tension setting and operating said means for controlling said motor to loosen said cable" is indefinite and confusing. Is the entire phrase intended to represent a single feature of the instant invention? Or, is the phrase "means for determining whether user has removed said brace without loosening the tension setting" representative of a single feature, and the remaining phrase "operating said means for controlling said motor to loosen said cable" intended to be a functional limitation? Applicant should note that the term "operating" implies a current action. If a functional recitation is intended, applicant should word the claim so that the current structure is capable of the intended function, or provide structural limitations which allow for such operation; i.e. --said means for controlling said motor including means to loosen said cable--.

Regarding claim 12, the phrase "with the last key pressed"

fails to define the metes and bounds of the instant invention. The meaning of the phrase is also unclear and lacks proper antecedent support in the claims.

The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Claims 1, 2, 4, and 6 are rejected under 35 U.S.C. § 103 as being unpatentable over Stabholz in view of Bonin, Jr. et al.

Stabholz discloses a back brace apparatus comprising a brace body [11] adapted to be wrapped around the trunk of a patient, the brace body comprising two segments; means [note the teaching of a buckle at column 8, line 11] at the end of each brace segment for allowing the two ends to be detachably connected together around the patient's trunk; and means [14] for

tightening the brace. Stabholz does not disclose his tightening means as automatic including a cable, a motor, and means for controlling the motor, but rather discloses a mechanical ratchet drive mechanism [21] in which a lever rotates a shaft thereby winding the belt about the shaft and allowing for selective tensioning of the belt about the wearer. Initially, applicant should note that it is well established that replacement of a manual operation with an automatic operation is a design consideration within the skill of the art. In re Venner, 262 F.2d 91, 120 USPQ 192 (CCPA 1955). Bonin, Jr. et al shows the conventional use in the art of a motor and motor control means for applying a desired tension in a cable to a body part. It would have been obvious to one having ordinary skill in the art to replace the manual mechanical means for tightening the belt of Stabholz with a cable interconnecting the belt segments and including automatic means such as a motor and controller as shown by Bonin, Jr. et al in order to provide easier adjustment for the user of the desired tightness.

Regarding claim 4, note the cable runs through pulley 45 of Bonin, Jr. et al which would be mounted on one of the brace segments.

Regarding claim 6, note that Bonin, Jr. et al teaches such features as timers, means for storing data, tension control settings, and means for outputting the data are conventional in

automatic control means of tension applying systems, thereby obviating their addition to Stabholz with the automatic tightening means.

Claim 10 is rejected under 35 U.S.C. § 103 as being unpatentable over Stabholz in view of Bonin, Jr. et al as applied to claim 1 above, and further in view of Palmer.

Stabholz/Bonin, Jr. et al discloses the instant invention as discussed, supra. Stabholz discloses a buckle as the connecting means between belt segment ends. Palmer also discloses an electromechanical belt and shows the conventional use of hook and loop fasteners [76, 78] as connecting means. It would have been obvious to one having ordinary skill in the art to replace the buckle of Stabholz with hook and loop fasteners as both are well known and used means for connecting in the art.

Claims 3, 5, and 7-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 11-16 would be allowable if rewritten to overcome the rejection under 35 U.S.C. § 112 and to include all of the limitations of the base claim and any intervening claims, if all

of the currently recited features remain in the claims after clarification of the 35 U.S.C. §112 problems.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Borschneck, Rabjohn, Willhelm et al, Forster, and Sarrell et al - Note the various traction systems having cable tensioning means.

Celeste et al, Myers, and Will - Note the various electromechanical belts as posture indicators.

Lambert, Sheffield, and Paulie - Note the various belts.

Any inquiry concerning this communication should be directed to Linda C.M. Dvorak at telephone number (703) 308-0858.

lcmd
April 16, 1993

RICHARD J. APLEY
SPE
ART UNIT 332